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INTELLECTUAL PROPERTY DEPARTMENT
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EXAMINER

MCGRAW, TREVOR EDWIN

ART UNIT

PAPER NUMBER

3752

MAIL DATE

DELIVERY MODE

10/15/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/807,336

Applicant(s)

PETERSON, WILLIAM A.

Examiner

Trevor E. McGraw

Art Unit

3752

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 August 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 16-27 is/are pending in the application.
- 4a) Of the above claim(s) 16-22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 23-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/22)
- Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 24 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In regard to Claim 24, Examiner cannot determine how the "the first position being located at a first position and as second position, the first position being located at a first distance from the longitudinal axis and the first spacing along the longitudinal axis relative to the second surface of the metering disc and the second position being located at a second distance from the longitudinal axis and a second spacing along the longitudinal axis from the second surface of the metering disc..." as Applicant does not provide adequate disclosure in the drawing figures as to the location of the orientation of the recited limitations. Examiner cannot fully determine the metes and bounds of Claim 24 in view of Applicant's failure to show the metering orifices that are located about and along the longitudinal axis. Appropriate clarification and or correction is required in response.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 23-27 are rejected under 35 U.S.C. 102(b) as being anticipated by Xu (US 6,848,635).

In regard to Claim 23, Xu teaches a method of controlling a spray of fuel through at least one metering orifice (26) of a fuel injector (10), the method comprising providing the fuel injector (10) having an inlet (see column 2, lines 7-17) and an outlet and a passage (18) extending along a longitudinal axis (14) therethrough, the outlet having a seat (16) and a metering disc (24), the seat (16) having a seat orifice (see opening of 16 that opens to 24 as shown in Figures 1, 2 and 8) and a first channel surface (lower portion of 16 that defines upper portion of 30) extending obliquely to the longitudinal axis (14), a needle (22) movable between first and second positions such that in the second position, the needle engages the seat (16) so as to prevent fuel from passing through the seat orifice (see opening of 16 that opens to 24 as shown in Figures 1, 2 and 8), the metering disc (24) including a second surface (see portion of 24 that abuts with 16 in Figure 8) confronting the first channel surface (lower portion of 16 that defines upper portion of 30) so as to provide a flow channel (30) that is separate from but in communication with the seat orifice (see opening of 16 that opens to 24 as shown in

Figures 1, 2 and 8), the metering disc (24) having a plurality of metering orifices (26) extending therethrough and located about the longitudinal axis (14), the metering orifices (26) being in communication with the flow channel (30), locating all of the metering orifices (26) on a first virtual circle (see Figures 3 and 6 where "26" is shown on a virtual circle) outside of a second virtual circle formed by a virtual extension (see second virtual circle of "27" in Figures 3 and 6) of a sealing surface of the seat (16) on the metering disc (24) such that each of the metering orifices (26) extends generally parallel to the longitudinal axis through the metering disc (24) and imparting a radial velocity to the fuel flowing from the seat orifice (see opening of 16 that opens to 24 as shown in Figures 1, 2 and 8) through the flow channel (30) so that fuel flows in transverse direction across and through the fuel metering orifices (26; see where flow travels transverse and out of "26" in Figure 8; see also portion of 30 that is formed past 26 in Figure 8).

In regard to Claims 24-27, Xu (as best understood in view of the 35 USC § 112 Second Paragraph issues) also teaches where the locating of the metering orifices (26) includes spacing a first metering orifice (first "26" on virtual circle; see Figure 3) at a first arcuate distance relative to a second metering orifice (second "26" on virtual circle; see Figure 3) on the first virtual circle (as shown in Figures 3 and 6) and the imparting of a radial velocity to the fuel flow includes configuring the flow channel (30) to extend between a first position and a second position, the first position being located at a first distance (distance of "26" from axis 14) from the longitudinal axis (14) and at a first spacing along the longitudinal axis (14) relative to the second surface of the metering

disc (24) and the second position being located at a second distance (distance of "38" from axis) from the longitudinal axis (14) and a second spacing along the longitudinal axis from the second surface of the metering disc (24), such that a product of the first distance and first spacing is generally equal to a product of the second distance and a second spacing where the imparting increases and decreases the radial velocity between the seat orifice (see opening of 16 that opens to 24 as shown in Figures 1, 2 and 8) and each of the metering orifices (26; distances closer together increase the radial velocity and distances further apart decrease the radial velocity as shown in Figures of Xu).

Response to Arguments

Objection to Drawings

Examiner withdraws the objection to the drawings in view of Applicant's amendment to Claim 23 that deletes the limitations "along the longitudinal axis" and is better representative of the present invention figures.

Rejection under 35 USC § 112

Examiner withdraws the rejection of Claims 23-27 in view of Applicant's amendment to Claim 23 that eliminates the indefinite language of "along the longitudinal axis" and better defines how the orifices are oriented in the present invention.

Rejection under 35 USC § 102

Applicant's arguments with respect to claims 23-27 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Trevor E. McGraw whose telephone number is (571) 272-7375. The examiner can normally be reached on Monday-Friday (2nd & 4th Friday Off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Len Tran can be reached on (571) 272-1184. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/T. E. M./
Examiner, Art Unit 3752

10/13/2010

/Len Tran/
Supervisory Patent Examiner, Art Unit 3752